

# **TROUBLE SHOOTING GUIDE**

<b>Problem</b>	<b>Symptoms</b>	<b>Causes</b>	<b>Solution</b>
Pump will not go into gear	No indication that pump is in gear (There are 3 signs a pump is in gear)	Parking brake is not applied  Road/pump switch is not in correct position  Gear shifter is not in correct gear	Start from beginning. Apply parking brake  Place Road/pump switch in pump position ensure green indicator light is illuminated  Place gear shifter in proper gear  Watch for 3 signs that pump is in gear 1. reading on speedometer 2. sound of pump engaging 3. indicator light in cab and at pump panel is illuminated green
Pump will not go in gear after 1 <sup>st</sup> attempt	No indication that pump is in gear (There are 3 signs a pump is in gear)	Road/pump switch malfunctioned	Follow manufacturer's instruction for placing pump in gear manually
Pump will not go in gear after 2 <sup>nd</sup> attempt	No indication that pump is in gear (There are 3 signs a pump is in gear)	Road pump switch malfunctioned or Mechanical failure	Allow Supply Engine to flow water through your pump. Open appropriate intakes and discharges.
No pressure reading on master pressure gauge	All 3 signs that pump is in gear are present	Tank to pump or intake is closed (No water in pump)  Master gauge is defective	Ensure proper valves are open Operate primer pump  Check individual line gauge for that discharge
Pump will not supply its rated capacity <u>2 stage pump</u>	RPM's do match pressure on UL plate	Transfer valve in wrong position	Place transfer valve in volume/parallel position to supply max capacity

Problem	Symptoms	Causes	Solutions
Pump will not supply its rated capacity <u>2 stage pump</u> (continued from last page)	RPM's do match pressure on UL plate. Max capacity not achieved.	Swing check valve may be blocked by debris.	Remove blind cap or intake valve from main intake on pump. Push on swing check valve with a long object to remove debris
	Intake may have no reading or high vacuum	Blockage in pump piping or impeller	Place additional supply line in service, reduce disch pressure, or back flush pump
Pressure drops while drafting	Low vacuum reading on intake gauge	Air leak from valves, packing, or other pump devices	Ensure all valves not used are closed and blind caps are tight Ensure enough water is covering strainer
	Increased vacuum reading	Blocked intake or strainer	Remove blockage and continue to flow water
Pump is overheating while pump is in gear	Overheat light and indicator is on & pump is very hot to touch	Possibly lack of flow through pump	Open discharge  Open circulating valve  Open tank fill, unless tank fill only runs off 1 <sup>st</sup> stage of pump
Relief valve does not work or is slow reacting	When lines are opened & closed relief valve does not control pressure increases	Blocked strainer in pilot valve to discharge relief valve	Remove strainer and wash out sediment. Turn relief valve off & on under pressure of 150psi for 1 minute.
		Relief valve is broken	Turn off relief valve and monitor pump gauges
Primer pump will not evacuate air and water adequately	Primer pump is running when primer is engaged	Engine RPM too low	Increase RPM's
		No oil in reservoir	Add oil
		Vent hole in oil reservoir cap is clogged preventing the siphon effect	Loosen cap or unclog cap to ensure the siphon effect

<b>Problem</b>	<b>Symptoms</b>	<b>Causes</b>	<b>Solutions</b>
Pump will not operate in series/pressure position	Pressures can not be achieved	Swing check valve is blocked	Remove blind cap or intake valve from main intake on pump. Push on swing check valve with a long object to remove debris  Back flush pump
Engine temperature gauge is indicating overheating of engine compartment	Temperature reading is above normal range	Engine is overheating, not enough air flow to cool engine	Open auxiliary cooler  Operate fan clutch  Check grill in front of radiator for debris  Use radiator fill valve
Supply line collapses while beginning to flow water or placing additional lines in service	Intake gauge is low or reads zero "0"          Water coming out of ground around barrel of hydrant	Kinks in supply line     Supply line not supplying the same amount of water being discharged    Hydrant not opened all the way	Remove kinks in supply line     Throttle down until you get an increased intake reading.  Reduce flow in other line or shut down  Ask Supply Engine for more water  Place 2 <sup>nd</sup> supply line in service  Open hydrant completely

Problem	Symptoms	Causes	Solutions
Pump will not supply sufficient pressures above >200psi	RPM's are normal compared to UL plate	Transfer valve in wrong position  Swing check valve blocked	Place in series/pressure for pressures above >200psi  Place pump in volume/parallel And back to series/pressure again. Listen for swing check valve to slam close. If not, remove remove blind cap or intake valve from main intake on pump. Push on swing check valve with a long object to remove debris  Back flush pump
Pump will not prime	Water will not fill hard sleeve. No vacuum reading          Possibly leaking water prior to attempting prime	Drain or bleeder valve left open  Intake valve open   Open discharge or circulating line/ booster line  intake relief valve leaking  hard sleeves are not air tight  pump packing is leaking air	Ensure master drain, bleeders, drains, & auxiliary cooler are closed  Close intake valves completely and tighten cap  Ensure tank to pump is closed if no water is in tank  Close discharges, booster line cooling valves, and circulating lines.  Blind cap and tighten  Tighten hard sleeve couplings  Re adjust packing, take out of service

Problem	Symptoms	Causes	Solutions
		<p>not operating primer long enough</p> <p>Malfunctioning primer pump</p>	<p>Prime should be achieved in 15-20 seconds, operate primer until water is on ground and discharge is flowing water at 50-100psi. Do not operate longer than &gt;30seconds</p> <p>See solutions in previous problems in “Primer pump will not evacuate air and water adequately” on page 3 of this guide</p>
Intake pressure in relay increases above 100psi	Intake >100psi	Hose lines being shut down or intake pressure has increased	<p>Open dump line discharge to maintain residual intake pressure of 50psi</p> <p>Changes in pressure above 10psi to below 100psi should not be adjusted nor should dump lines be utilized. Expect some fluctuation in relay.</p>